Remarks

Claims 1, 4-7, 9-13, 15, 16, 19 and 20 are pending in the application.

Claims 1, 4-7, 9-13, 15-16 and 19-20 are rejected under 35 U.S.C. 112, ¶2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 5, 7, 10-13, 15-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atia et al. ("Demonstration of Return-to-Zero Signalling ...", IEEE Lasers and Electro-Optics Society, hereinafter "Atia") in view of Murakami et al. (U.S. Patent No. 6,307,985 B1, hereinafter "Murakami") and Cai et al. (U.S. Patent 7,016,606 B2, hereinafter "Cai").

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai as applied to claims 1, 5, 7, 10-13, 15-16 and 19-20 and further in view of Ono et al. (U.S. Patent No. 6,097,525, hereinafter "Ono").

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai as applied to claims 1, 5, 7, 10-13, 15-16 and 19-20 and in further view of Tzukerman et al. (U.S. Patent No. 6,724,829, hereinafter "Tzukerman").

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai as applied to claims 1, 5, 7, 10-13, 15-16 and 19-20 and further in view of Fukuchi (U.S. Patent No. 5,745,613, hereinafter "Fukuchi").

Each of the various rejections and objections are overcome by various amendments and arguments that are presented.

Entry of this Amendment is proper under 37 CFR 1.116 since the amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfies a requirement of form asserted in the previous Office Action; (d) does not present any additional claims without canceling a corresponding number of finally rejected claims; or (e) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to

arguments raised in the final rejection. Entry of the amendment is thus respectfully requested.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Rejection Under 35 U.S.C. 112

Claims 1, 4-7, 9-13, 15-16 and 19-20 are rejected under 35 U.S.C. 112, ¶2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19-20 have been canceled, and their rejections are therefore moot.

Claims 1 and 16 have been amended to further clarify Applicants' invention.

Since the terminologies of "very short" and "very quickly" have been deleted from claims 1 and 16, the rejection of claims 1, 4-7, 9-13 and 15-16 under 35 U.S.C. 112, ¶2 should be withdrawn.

Rejection Under 35 U.S.C. 103(a)

Claims 1, 5, 7, 10-13, 15-16 and 19-20

Claims 1, 5, 7, 10-13, 15-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atia in view of Murakami and Cai. The rejection is traversed.

Claims 19-20 have been canceled, and their rejections are therefore moot.

Claim 1 has been amended to recite, in part: "wherein dispersion management is provided by applying pre-dispersion compensation to the optical phase modulated signal containing pulses having a duty cycle of less than or equal to about 33%, and applying post-dispersion compensation to the transmitted signal."

The amended claim is fully supported by the original specification, e.g., at least on p. 8, lines 3-31, which teaches dispersion management using pre-compensation and post-compensation.

The present application incorporates by reference (see specification, p. 8, lines 11-22) another US patent application, S/N 09/372,486, which issued as US patent 6,606,176 B1 to Essiambre et al. (hereinafter, "Essiambre"). Essiambre teaches a modulation format with low sensitivity to fiber nonlinearity, and further teaches using pulses with a low duty cycle, e.g., 20% (e.g., Essiambre, col. 3, lines 7-10 and Fig. 10), which is less than 33%. The present application also teaches, on p. 8, lines 27-28, a duty cycle of about 33%. As such, no new matter has been added in the amended claim 1.

Applicants submit that the combined teaching of Atia, Murakami and Cai does not render claim 1 obvious, because there is no teaching of at least the features of applying pre-dispersion compensation (e.g., at the beginning portion of the transmission medium) and post-dispersion compensation to pulses with a duty cycle of less than or equal to about 33%.

Specifically, Atia teaches return-to-zero (RZ) signaling in on-off keying (OOK) and differential phase shift keying (DPSK) formats to improve receiver sensitivity in an optically preamplified receiver. Atia does not teach or suggest any pre- or post-dispersion compensation applied to pulses with a duty cycle of less than or about 33%.

Murakami teaches a method of providing fibers of certain lengths with positive and negative dispersions along a transmission path in order to reduce signal deterioration caused by fiber non-linearity and dispersion (Abstract; col. 3, line 7 - col. 4, line 41). However, Murakami's method does not pertain to pre- or post-dispersion compensation because these fibers with opposite dispersions are provided throughout the fiber transmission medium.

Cai teaches a method of line coding to mitigate optical pulse collision induced errors in WDM optical communications systems (Abstract; col. 1, lines 14-18). In rejecting claims 19-20, the Examiner cited Cai's Fig. 5 as allegedly teaching pulses having a duty cycle of about 33%. Applicants respectfully disagree.

Fig. 5 of Cai is a schematic representation of soliton-soliton collisions between two WD channels in a fiber optic communication system (Cai, col. 6, lines 65-67). What Cai teaches in Fig. 5 is the use of a sliding window criteria (SWC) to "construct a mapping code whereby a block of a binary input data sequence is mapped to a corresponding block of encoded data whereby the variance of the number of possible soliton-soliton collisions is reduced in comparison to the original input data" (Cai, col. 8, lines 46-56).

There is no teaching or suggestion in Cai regarding any significance associated with a duty cycle for the soliton pulses, less alone a specific value of less than or equal to about 33%. Applicants submit that Fig. 5 should be interpreted in the proper context of Cai's teaching -- that it is used only as a schematic illustration of soliton-soliton collisions, with no specific meaning attributable to any particular value of the duty cycle.

As such, the combined teaching of Atia, Murakami and Cai does not teach or suggest each and every feature in Applicants' claim 1. Claim 1 is therefore patentable over these references.

Independent claim 16 has also been amended to include relevant features similar to claim 1. Thus, claim 16 is also patentable over the combined teaching of Atia, Murakami and Cai.

Finally, since claims 5, 7, 10-13, 15 and 19-20 depend from claim 1 or claim 16 and recite additional limitations therefrom, these claims are also patentable for at least the reasons discussed above with respect to claim 1.

Therefore, the rejection of claims 1, 5, 7, 10-13, 15-16 and 19-20 should be withdrawn.

Claims 4, 6 and 9

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai and further in view of Ono.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai and further in view of Tzukerman.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atia, Murakami and Cai and further in view of Fukuchi.

The rejections are traversed.

Each ground of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 103 given Atia, Murakami and Cai. Since the rejection under 35 U.S.C. 103 given Atia, Murakami and Cai has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that the additional references supply that which is missing from Atia, Murakami and Cai to render the independent claims obvious, these grounds of rejection cannot be maintained.

Therefore, Applicants' claims 4, 6 and 9 are patentable under 35 U.S.C. 103(a) over Atia, Murakami and Cai and further in view of the respective references of Ono, Tzukerman and Fukuchi. As such, the Examiner's rejection should be withdrawn.

Applicants' 132 Declaration

Applicants do not agree with the Examiner's position regarding the 132 Declaration submitted on September 17, 2007. However, in view of the above

amendments and arguments, Applicants do not find it necessary to respond to the Examiner's position at this stage.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732)530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully,

Date: 3/10/08

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